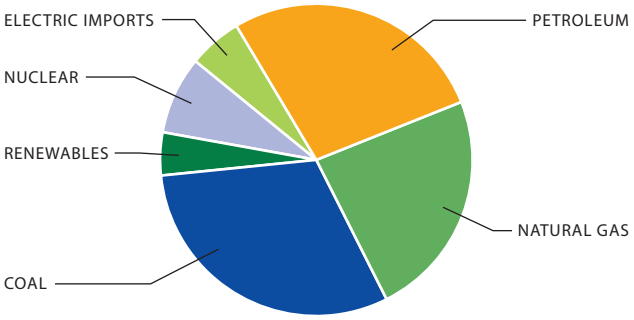
Wisconsin Resource Energy Consumption

Resource energy consumption decreased by .3 percent in 2008. Resource energy includes all energy resources used to generate electricity, including the energy content of the coal, petroleum, nuclear and renewable fuels.

TOTAL RESOURCE ENERGY CONSUMPTION: 1,743.0 TRILLION BTU

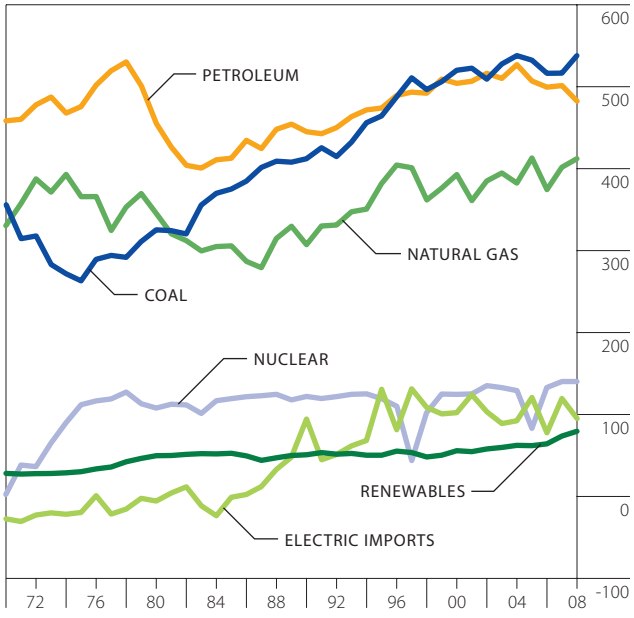
By Type of Fuel

2008 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2008 Trillions of Btu	2008 Percent of Total
Renewables	78.7	4.5%
Electric Imports	94.4	5.4%
Nuclear	139.4	8.0%
Natural Gas	411.4	23.6%
Petroleum	481.8	27.6%
Coal	537.3	30.8%

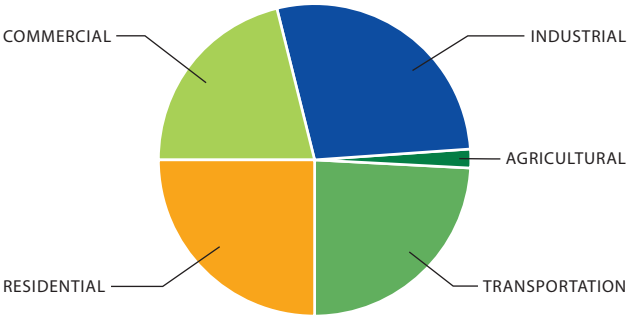
1970-2008 TRILLIONS OF BTU



Source: Wisconsin Office of Energy Independence.

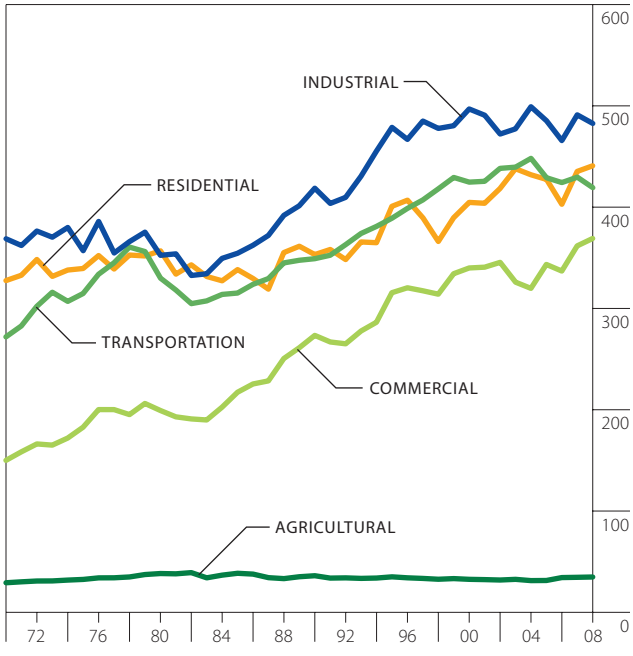
By Economic Sector

2008 TRILLIONS OF BTU AND PERCENT OF TOTAL



Economic Sector	2008 Trillions of Btu	2008 Percent of Total
Agricultural	34.1	2.0%
Commercial	368.3	21.1%
Transportation	418.5	24.0%
Residential	440.1	25.2%
Industrial	481.9	27.6%

1970-2008 TRILLIONS OF BTU



Source: Wisconsin Office of Energy Independence.

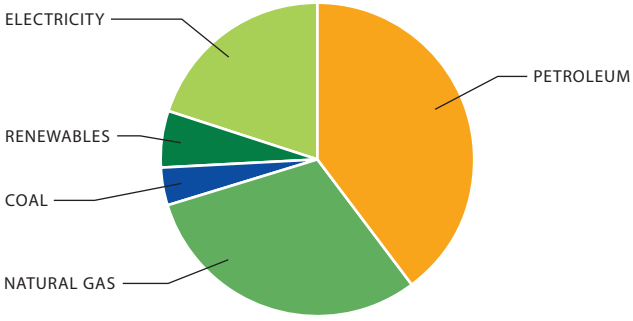
Wisconsin End-Use Energy Consumption

End-use energy increased by 0.28 percent overall in 2008. End-use energy is a measure of the energy content of fuels at the point of consumption.

TOTAL END-USE ENERGY CONSUMPTION: 1,208.7 TRILLION BTU

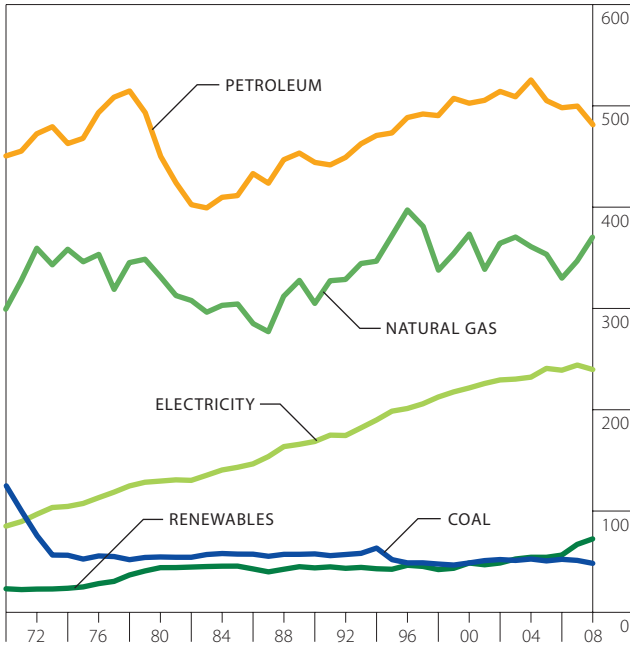
By Type of Fuel

2008 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2008 Trillions of Btu	2008 Percent of Total
Coal (non-utility)	47.6	3.9%
Renewables	71.7	5.9%
Electricity	238.9	19.8%
Natural Gas	369.7	30.6%
Petroleum	480.7	39.8%

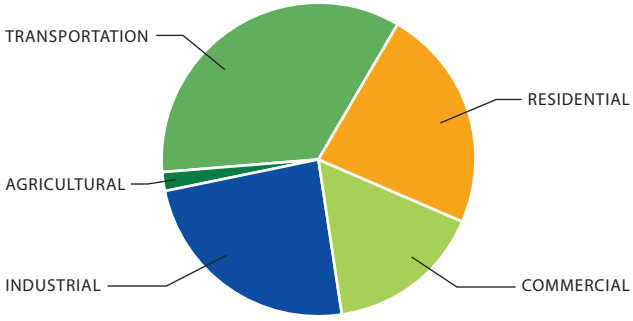
1970-2008 TRILLIONS OF BTU



Source: Wisconsin Office of Energy Independence.

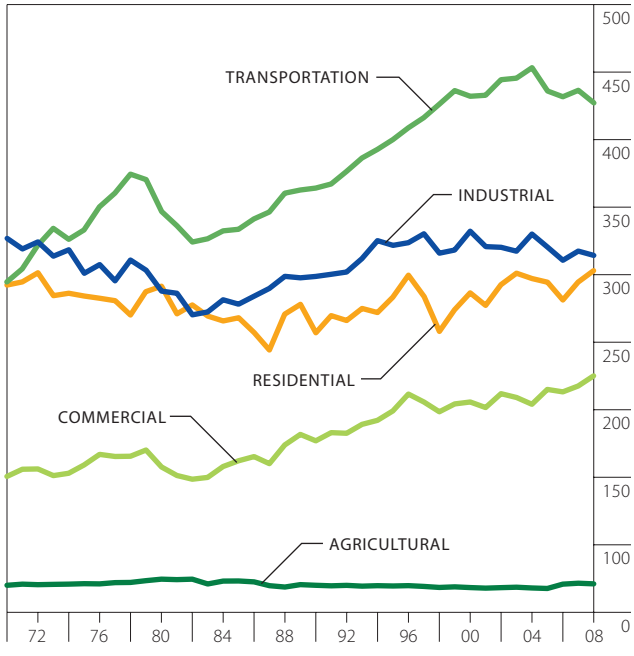
By Economic Sector

2008 TRILLIONS OF BTU AND PERCENT OF TOTAL



Economic Sector	2008 Trillions of Btu	2008 Percent of Total
Agricultural	22.8	1.9%
Commercial	193.9	16.0%
Residential	280.5	23.2%
Industrial	293.0	24.2%
Transportation	418.5	34.6%

1970-2008 TRILLIONS OF BTU



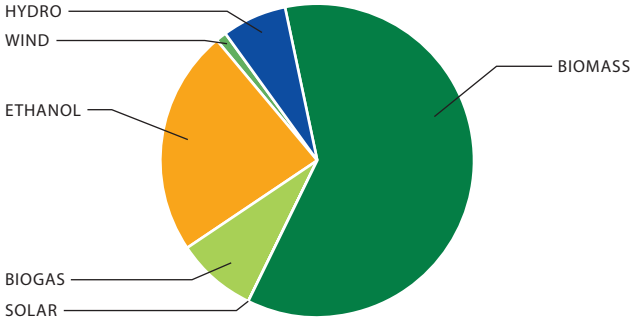
Source: Wisconsin Office of Energy Independence.

Wisconsin Renewable Energy Production

Overall renewable energy use in Wisconsin increased 7.9 percent in 2008. Renewable energy production includes *all* renewable energy used in Wisconsin for generating electricity and for other applications that displace fossil fuels (e.g., space heating, transportation fuel).

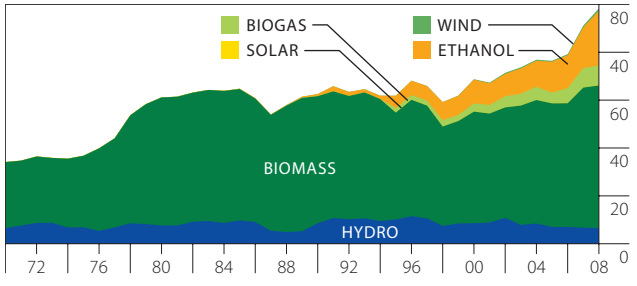
By Type of Fuel

2008 TRILLIONS OF BTU AND PERCENT OF TOTAL



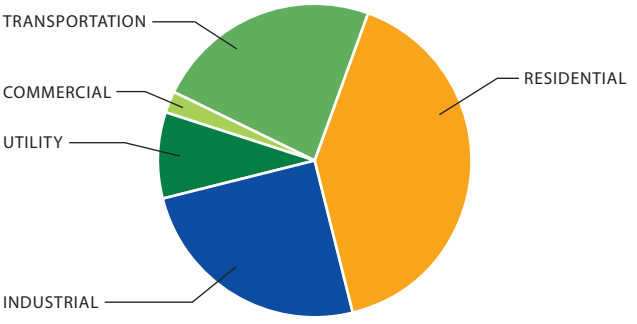
Type of Fuel	2008 Trillions of Btu	2008 Percent of Total
Solar	0.0273	0.0%
Wind	0.8	1.1%
Hydro	5.3	6.7%
Biogas	6.6	8.4%
Ethanol	18.3	23.3%
Biomass	47.6	60.5%

1970-2008 TRILLIONS OF BTU



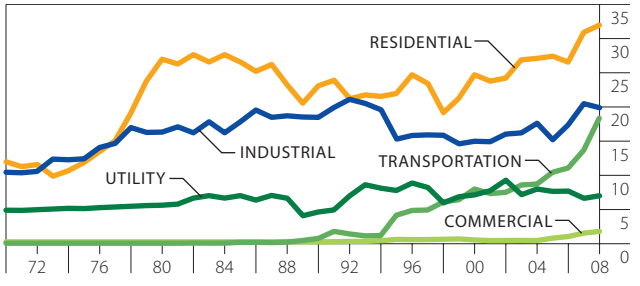
By Economic Sector

2008 TRILLIONS OF BTU AND PERCENT OF TOTAL



Economic Sector	2008 Trillions of Btu	2008 Percent of Total
Commercial	1.7	2.2%
Utility	6.9	8.8%
Transportation	18.3	23.3%
Industrial	19.8	25.2%
Residential	31.9	40.5%

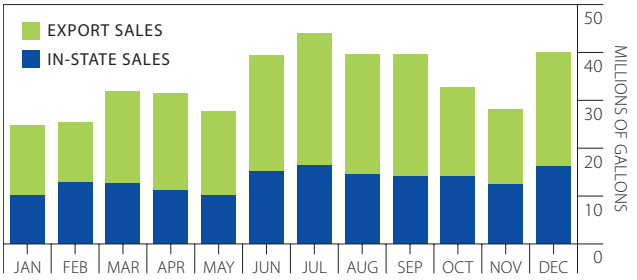
1970-2008 TRILLIONS OF BTU



Ethanol Production in Wisconsin

Ethanol use in the transportation sector increased 34.6 percent. Ethanol, a renewable energy resource primarily distilled from corn, is used as an oxygenate in reformulated gasoline and in the blending of E10 (10 percent ethanol, 90 percent gasoline) and E85 (85 percent ethanol, 15 percent gasoline). Ethanol is Wisconsin's sole exported fuel.

2008 ETHANOL SALES BY WISCONSIN PRODUCERS



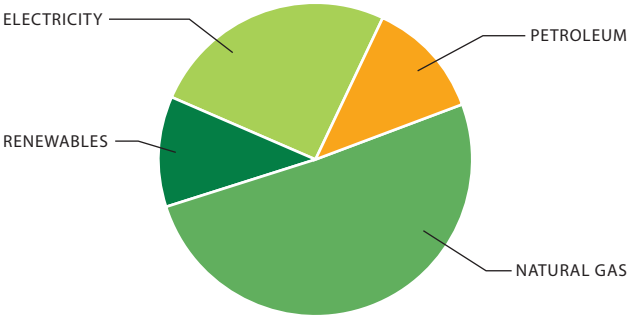
Source: Wisconsin Office of Energy Independence.

Wisconsin Residential Energy Use

Residential resource energy consumption increased 1.3 percent while end-use consumption increased 3.5 percent. Natural gas is the dominant fuel used in Wisconsin homes—natural gas use increased 7.2 percent. Electricity use per customer decreased 2.6 percent. The increase in natural gas relates to the increase in Heating Degree Days (HDD) in 2008—an 11 percent increase over 2007.

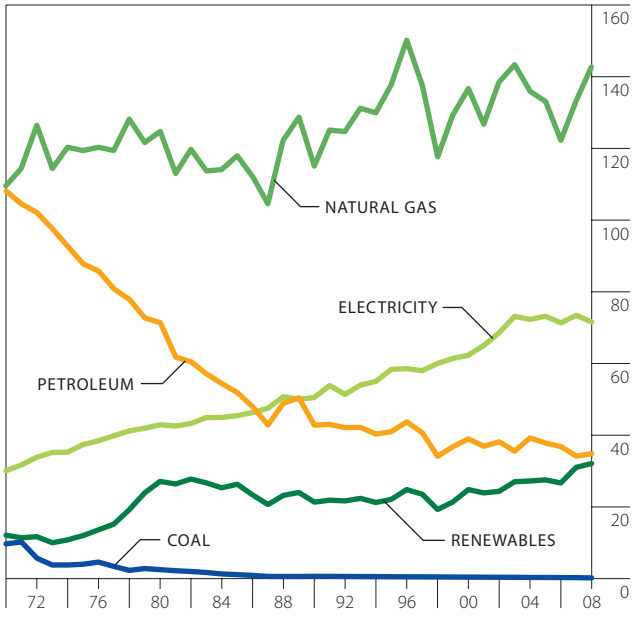
By Type of Fuel

2008 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2008 Trillions of Btu	2008 Percent of Total
Coal (non-utility)	0.0	0.0%
Renewables[a]	31.9	11.4%
Petroleum	34.6	12.3%
Electricity	71.4	25.4%
Natural Gas	142.6	50.8%

1970-2008 TRILLIONS OF BTU

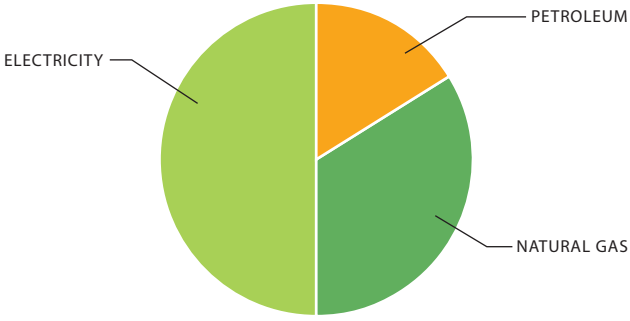


a Renewables includes wood, solar, wind and biogas.

Source: Wisconsin Office of Energy Independence.

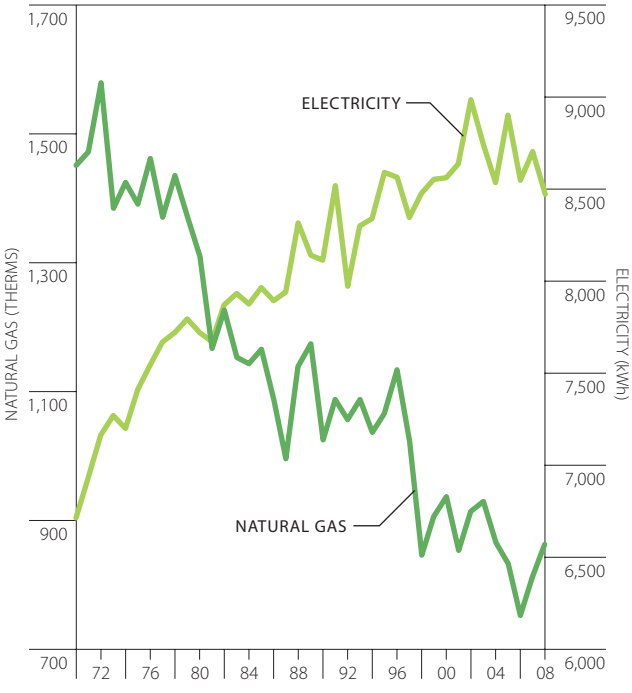
Expenditures and Per Customer Usage

2008 MILLIONS OF DOLLARS AND PERCENT OF TOTAL



Type of Fuel	2008 Millions of Dollars	2008 Percent of Total
Petroleum	788.1	16.2%
Natural Gas	1,648.1	33.9%
Electricity	2,426.0	49.9%

1970-2008 ELECTRICITY AND NATURAL GAS USE PER CUSTOMER



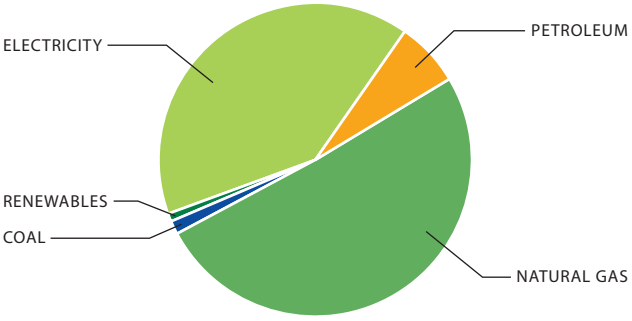
Source: Wisconsin Office of Energy Independence.

Wisconsin Commercial and Industrial Energy Use

Commercial sector end-use energy increased 4.5 percent, while industrial sector end-use decreased 1.2 percent.
In the commercial and industrial sectors natural gas remains the major energy source,
providing 50.8 percent of commercial sector energy and 43.9 percent in the industrial sector.

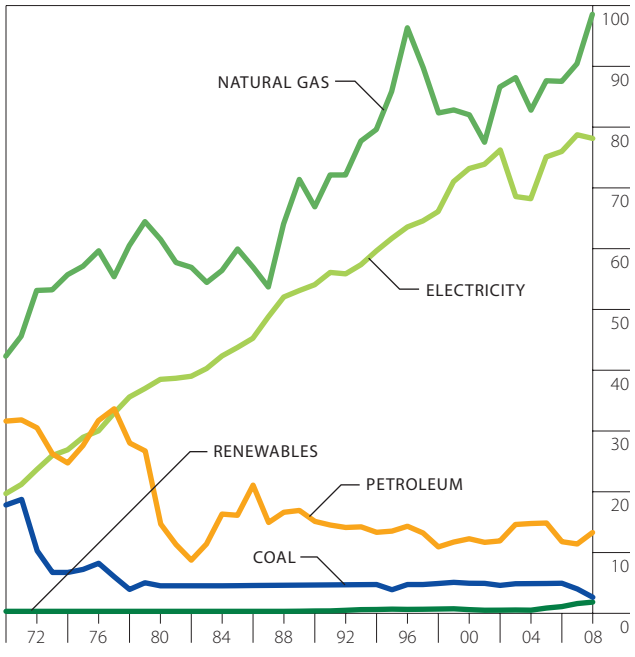
Commercial by Type of Fuel

2008 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2008 Trillions of Btu	2008 Percent of Total
Renewables	1.7	0.9%
Coal (non-utility)	2.5	1.7%
Petroleum	13.2	6.8%
Electricity	78.0	40.2%
Natural Gas	98.5	50.8%

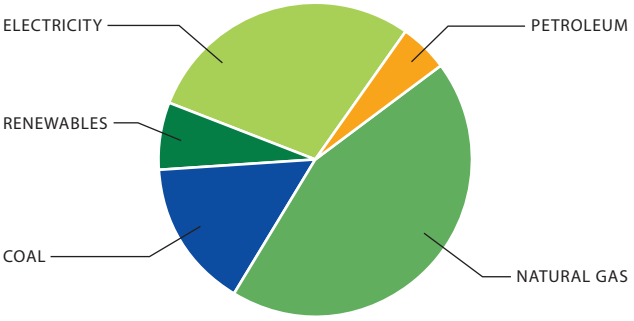
1970-2008 TRILLIONS OF BTU



Source: Wisconsin Office of Energy Independence.

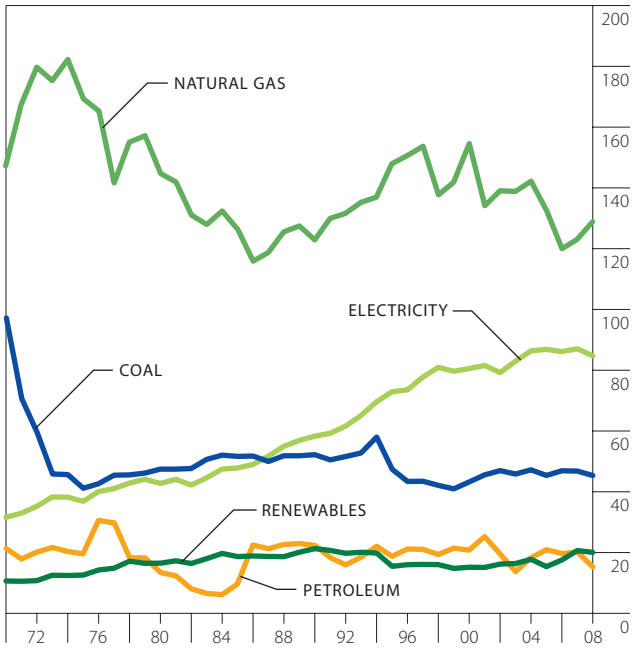
Industrial by Type of Fuel

2008 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2008 Trillions of Btu	2008 Percent of Total
Petroleum	15.0	5.1%
Renewables	19.8	6.8%
Coal (non-utility)	45.1	15.4%
Electricity	84.5	28.8%
Natural Gas	128.6	43.9%

1970-2008 TRILLIONS OF BTU



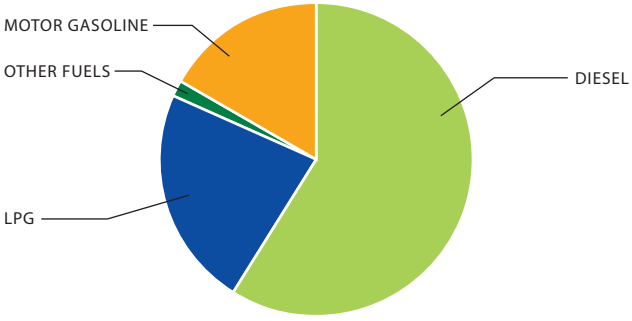
Source: Wisconsin Office of Energy Independence.

Wisconsin Agricultural and Transportation Energy Use

Agricultural petroleum consumption decreased by 3.1 percent in 2008, while electricity consumption increased by 7.8 percent. In 2008, the average statewide price of gasoline increased by $.422 a gallon, to $3.289 a gallon. High gasoline prices in 2008 contributed to the decrease in gasoline consumption.

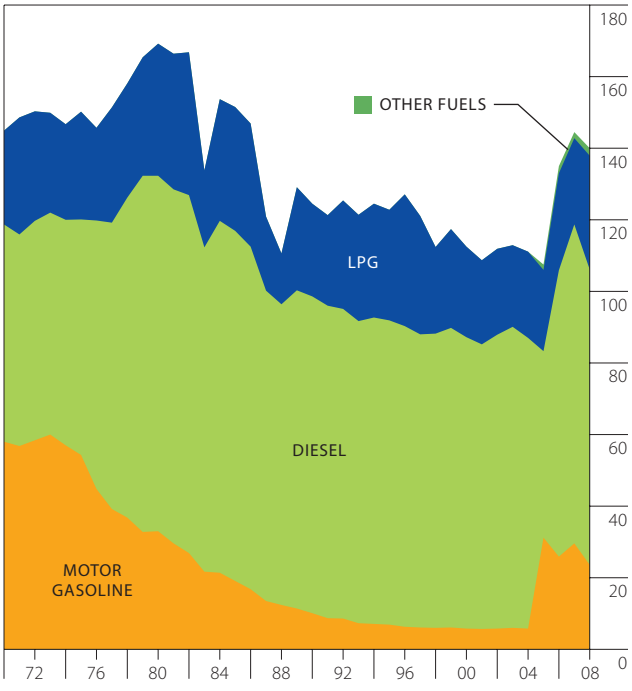
Agricultural by Type of Fuel

2008 MILLIONS OF GALLONS AND PERCENT OF TOTAL



Type of Fuel	2008 Millions of Gallons	2008 Percent of Total
Other Fuels	2.1	1.5%
Motor Gasoline	23.6	16.9%
LPG	31.8	22.7%
Diesel	82.5	58.9%

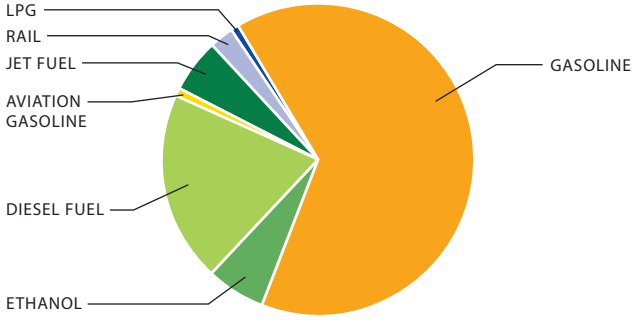
1970-2008 MILLIONS OF GALLONS



Source: Wisconsin Office of Energy Independence.

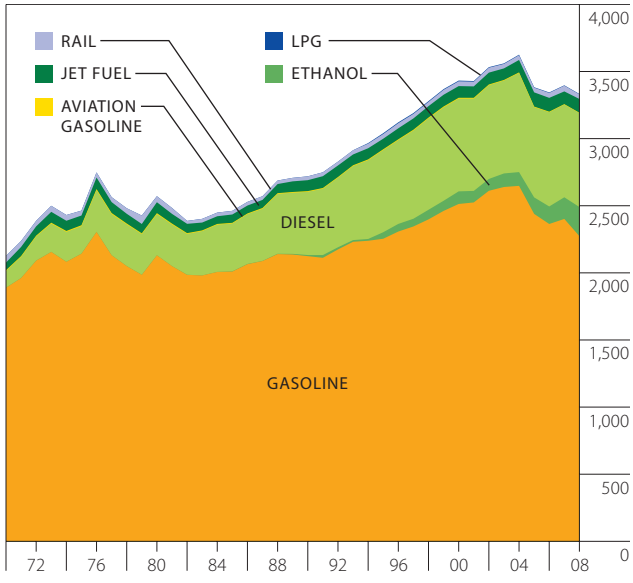
Transportation by Type of Fuel

2008 MILLIONS OF GALLONS AND PERCENT OF TOTAL



Type of Fuel	2008 Millions of Gallons	2008 Percent of Total
LPG	2.5	0.1%
Aviation Gasoline	2.6	0.1%
Rail	34.7	1.0%
Jet Fuel	102.4	3.1%
Ethanol	217.0	6.5%
Diesel Fuel	700.0	21.0%
Gasoline	2,273.3	68.2%

1970-2008 MILLIONS OF GALLONS



Source: Wisconsin Office of Energy Independence.

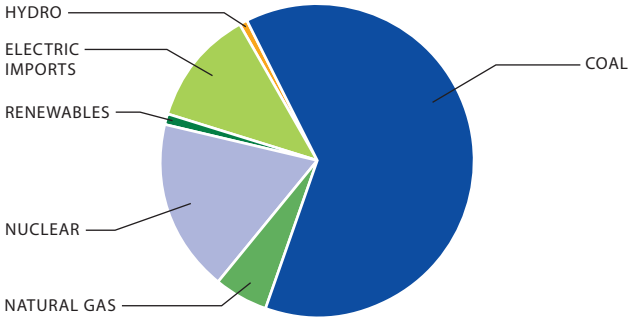
Wisconsin Energy Use for Electricity Generation and Electric Utility Sales

Wisconsin's energy use for electric generation decreased by 1.7 percent in 2008, while total electricity sales decreased 1.8 percent.

In 2008 electricity sales decreased in all sectors except agricultural.

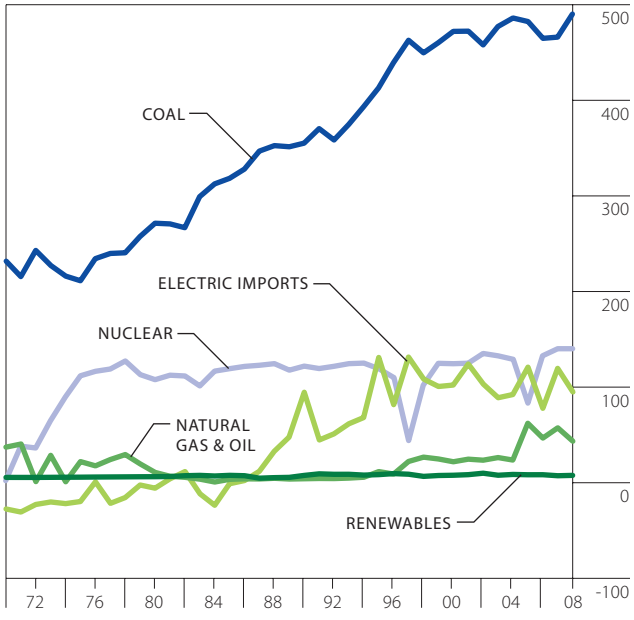
Energy Use for Electricity Generation by Type of Fuel

2008 TRILLIONS OF BTU AND PERCENT OF TOTAL



Type of Fuel	2008 Trillions of Btu	2008 Percent of Total
Hydro	4.7	0.6%
Renewables	6.9	0.9%
Natural Gas	42.8	5.5%
Electric Imports	94.4	12.1%
Nuclear	139.4	17.9%
Coal	489.7	63.0%

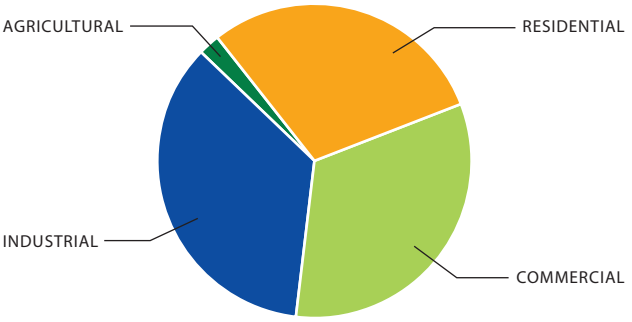
1970-2008 TRILLIONS OF BTU



Source: Wisconsin Office of Energy Independence.

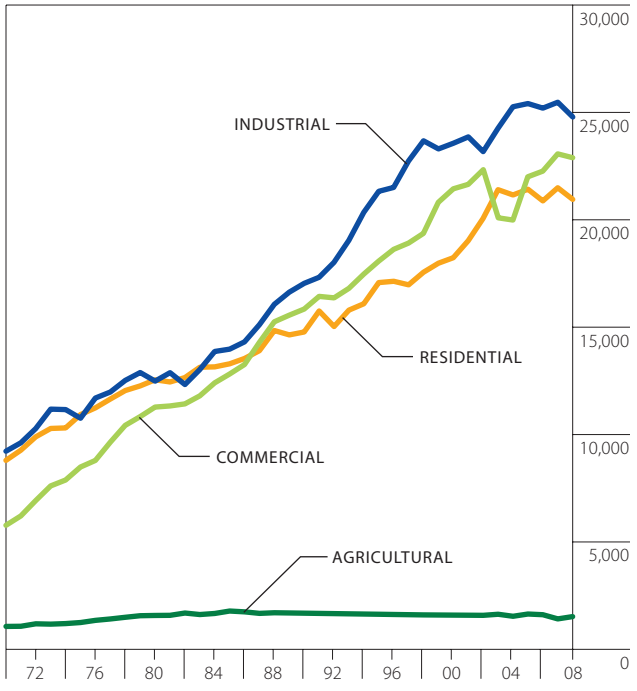
Electric Utility Sales by Economic Sector

2008 MILLIONS OF kWh AND PERCENT OF TOTAL



Economic Sector	2008 Millions of kWh	2008 Percent of Total
Agricultural	1,486	2.1%
Residential	20,914	29.9%
Commercial	22,855	32.7%
Industrial	24,753	35.4%

1970-2008 MILLIONS OF kWh



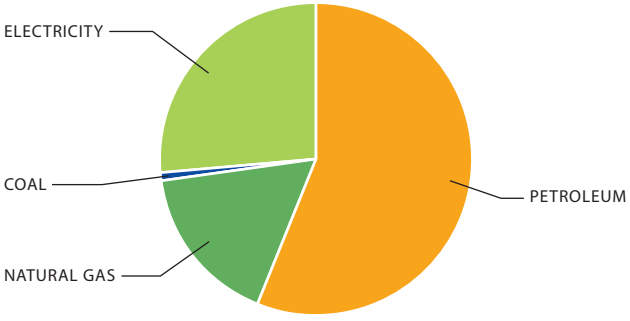
Source: Wisconsin Office of Energy Independence.

Wisconsin End-Use Energy Expenditures

In 2008, Wisconsin's overall energy bill set a new record of more than $23.5 billion, an increase of $2.5 billion (12.1 percent) over 2007. Expenditures increased for all fuels. Since 2000, Wisconsin's total energy expenditures increased by $11.5 billion--almost double (95.6 percent increase).

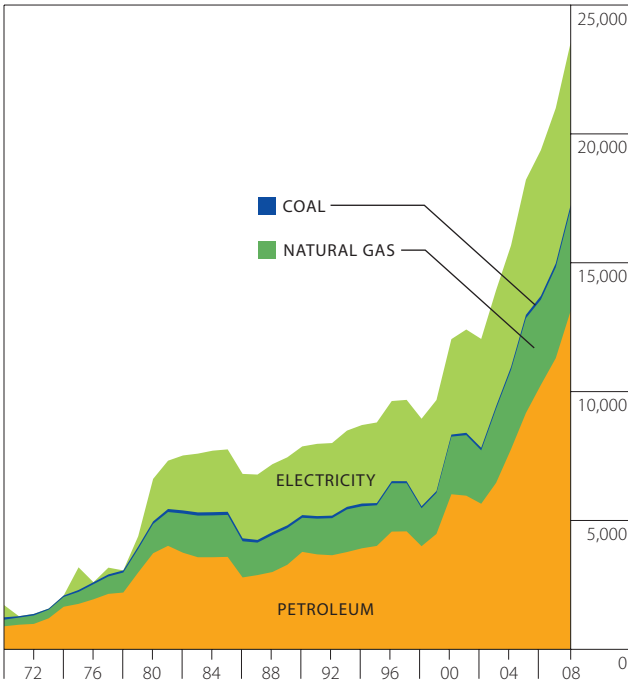
By Type of Fuel

2008 MILLIONS OF DOLLARS AND PERCENT OF TOTAL



Type of Fuel	2008 Millions of Dollars	2008 Percent of Total
Coal (non-utility)	154	0.7%
Natural Gas	3,955	16.8%
Electricity	6,304	26.8%
Petroleum	13,135	55.8%

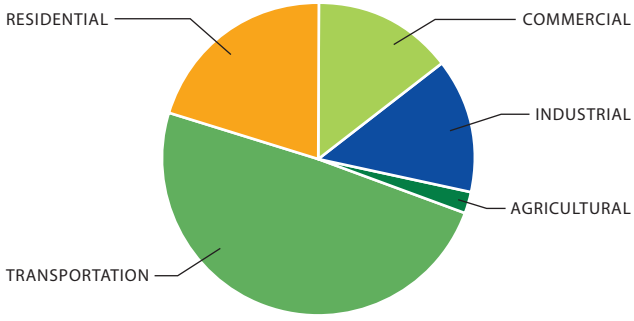
1970-2008 MILLIONS OF DOLLARS



Source: Wisconsin Office of Energy Independence.

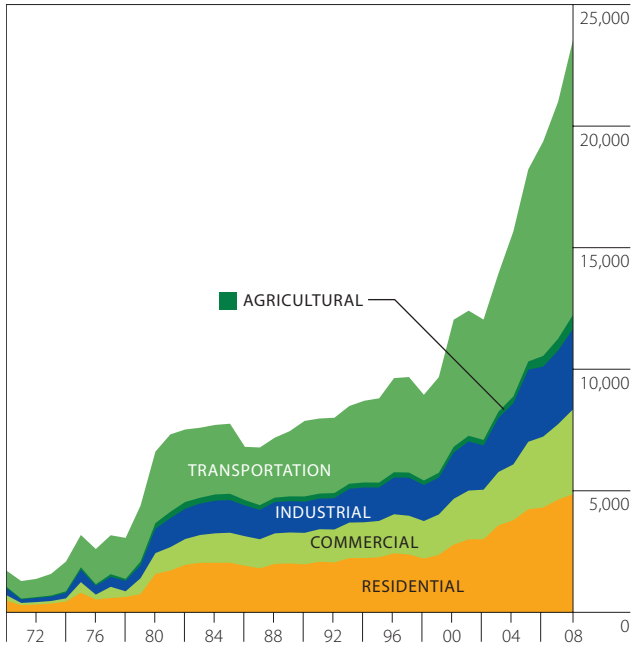
By Economic Sector

2008 MILLIONS OF DOLLARS AND PERCENT OF TOTAL



Economic Sector	2008 Millions of Dollars	2008 Percent of Total
Agricultural	578	2.5%
Industrial	3,309	14.1%
Commercial	3,487	14.8%
Residential	4,862	20.6%
Transportation	11,312	48.0%

1970-2008 MILLIONS OF DOLLARS



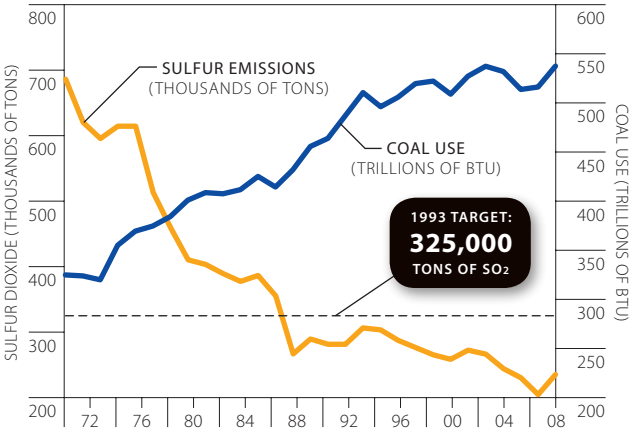
Source: Wisconsin Office of Energy Independence.

Wisconsin Emissions

Utility sulfur dioxide emissions increased 8.2 percent from 2007 to 2008. SO_2 emissions are pollutants and are measured for air quality monitoring. CO_2 is a greenhouse gas which contributes to global warming. Wisconsin's CO_2 emissions from energy increased 0.9 percent in 2008. Since 1990, total CO_2 emissions have increased 24 percent. 2008 levels of CO_2 emissions are slightly higher than 2000 levels.

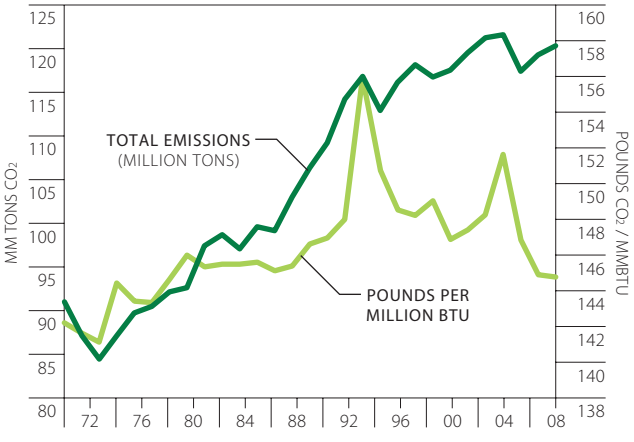
Sulfur Dioxide Emissions and Coal Use

1980-2008



Carbon Dioxide Emissions from Energy Use

1980-2008 MILLIONS OF TONS AND POUNDS PER MILLION BTU[a]



a Does not include electric imports.

Source: Wisconsin Office of Energy Independence.

2009 Transportation and Heating Fuels

Transportation Fuel Prices

Wisconsinites spent $7.4 billion on transportation fuel in 2009, a decrease of $3.8 billion from 2008.[3] The decrease in expenditures is due primarily to a decrease in prices.

Transportation Fuels Prices per Gallon[1,2]	2008	2009
Gasoline	$3.2894	$2.2399
Diesel	$3.8207	$2.5471

Household transportation expenditure figures include a wide variety of transportation costs from the price of fuel at the pump, to your property taxes, and the delivery costs built into the price of household products.

Transportation Expenditures per Household	2008	2009
Annually	$4,917	$3,251
Monthly	$410	$271

Transportation Fuel Consumption

- Wisconsin used 5.8 million **more** gallons of gasoline than during 2008, an increase of 0.23 percent.

Transportation Fuels Consumed	2008	2009
Gasoline	2.5 billion gallons	2.5 billion gallons
Diesel	782.5 million gallons	706.8 million gallons

- Wisconsin used 75.7 million **fewer** gallons of diesel than during 2008, an decrease of 9.7 percent.

Heating Fuels Prices

2009 saw changes in fuel prices, especially those used for heating,[4] and electricity.[5]

Fuel	% Change	2008 Price	2009 Price
Heating Oil	▼ 26.5%	$3.01 per gallon	$2.21 per gallon
LP Gas	▼ 20.5%	$2.24 per gallon	$1.78 per gallon
Natural Gas[6]	▼ 31.6%	$11.56 per MMBtu	$7.91 per MMBtu
Residential Electricity	▲ 3.0%	$.1174 per kWh	$.1209 per kWh

Ethanol – E10 and E85 in Wisconsin

- Ethanol use in 2009 **increased** by 5.85 percent from 217 million gallons in 2008 to 229.7 million gallons in 2009.
- A larger percentage of Wisconsin's gasoline is mixed with ethanol. In 2009, 90.5 percent of Wisconsin's gasoline was an ethanol blend, compared to 85.5 percent in 2008.[2]

1 From the American Automobile Association, Daily Fuel Gauge Report. http://www.fuelgaugereport.com/Wlavg.asp

2 This includes fuel usage in the agriculture sector, but does not include rail or aviation fuel.

3 2009 transportation expenditures were $5,637.1 million for motor gasoline including ethanol and $1,800.4 million for diesel fuel, for a total of $7,437.5 million.

4 All prices are statewide averages for the calendar year.

5 Heating fuel and LP rates are gathered from fuel retailers across the state as part of an OEI telephone survey. Electricity price averages are compiled from rates reported to the Public Service Commission of Wisconsin. Natural Gas rates are compiled from rates reported by utilities.

6 Natural gas prices are set during the summer when gas is purchased and stored by utilities.